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RECORD OF GEOGRAPHICAL PROGRESS.

NORTH AMERICA.

MR. MORRIS K. JESUP'S EXPEDITION.—Mr. Morris K. Jesup, president of the American Museum of Natural History, has generously provided the funds for an important work which the Museum is about to undertake. A systematic exploration and study will be made of the peoples inhabiting the coasts of the North Pacific Ocean, between the Columbia River in America and the Amur River in Asia. The explorations along these extensive coasts are expected to cover a period of six years. The first party will start for Washington and British Columbia this spring, and Dr. Franz Boas will be one of its three or four members. It is the purpose, if possible, to clear up many of the obscure points regarding the early history of the American race. The important question of the relation of the American race to the races of the Old World has long been discussed, but has never been studied in a systematic manner. Some investigators believe that American culture grew up spontaneously, while others think they have found traces of Asiatic culture on this continent. It has been suggested that Asiatic influences may have reached America by two routes, *via* Bering Strait or by the islands of the Pacific to South America. Mr. Jesup's expeditions will endeavor thoroughly to investigate the hypothesis, favored in recent writings by Dr. Ratzel, Dr. Boas and Mr. Otis T. Mason, that an early interchange of cultural achievements took place between northeastern Asia and western America. This theory is combated by some, notably by Mr. D. G. Brinton. The racial relationship between the peoples of Asia and America is also a controverted question. Dr. Boas is quoted in the *Evening Post* as saying: "When I expressed the opinion that the peoples of British Columbia are more closely related to the Asiatic race than any other North American Indians, I did not bring forward any material from the Asiatic side to sustain the assertion." The solution of these questions requires a systematic study of the whole area, and it is important to take up the work before civilization has destroyed the primitive cultures entirely.

Dr. Boas adds that the only contribution to our knowledge of the ethnology of the Pacific coast of Siberia of any great scientific value is that of Schrenck on the peoples of the Amur. But not-

withstanding this and other work, the types of man, the languages, customs and mythology of the whole region are practically unknown. Information is somewhat fuller on the American side, and includes for Southern Alaska and the Aleutian Islands the linguistic works of the Russian missionary, Veniaminoff, and the researches of Dall, Pinart, Krause and Emmons; for Arctic Alaska, mainly the work of Murdoch on the Eskimo of Point Barrow; for British Columbia, the investigations under the auspices of the British Association, mainly by Dr. Boas. The Pacific coast work will be begun this spring in fields still unexplored, and will be continued as long as there are important gaps in our knowledge of the ethnology of the coast. A thorough study of all the numerous dialects, of the customs of all the tribes, and of the physical characteristics will be required to bring order out of chaos. The problems to be studied offer many difficulties. Between the Columbia River and Bering Strait, for instance, ten languages are found that are fundamentally distinct, and these languages have thirty-seven dialects that are mutually unintelligible. On the Asiatic side there are seven distinct languages spoken in at least ten dialects, which are mutually unintelligible, but there may be more, since our knowledge of the whole area is very meagre.

DR. CARL LUMHOLTZ IN MEXICO.—The *Mexican Herald*, City of Mexico, of Dec. 25 last, has an interview with Dr. Lumholtz, who was paying a short visit to that city. He is reported to have said that since his return to the Sierra Madre Mountains, about two and a half years ago, on his second expedition, he worked southward among the mountains through the States of Chihuahua and Durango among the Tarahumari and the Tepehuane Indians, the former living in the south part of Chihuahua and the latter in Durango. He lived a year and a half among these tribes and then spent a half year among the isolated Huichole Indians, who number about 4,000, and are walled in among the mountains of the State of Jalisco. He has also spent some time among the superstitious and rather unfriendly Tarascan Indians of Michoacan. In the five years of his work in Mexico he has lived among ten tribes. He was about to go to Guadalajara and Chihuahua for some further material, and expected to publish a book entitled "Five Years among the Indians in the Sierra Madre." Among his large collections are nearly 2,000 photographs of the natives, their arts, customs, etc.

UNEXPLORED TERRITORY NORTH OF COOK'S INLET.—The United States Geological Survey contemplates sending a party into the region north of Cook's Inlet, Alaska, this season, to make a survey and map of that little known region which is beginning to attract the attention of gold-seekers. Last summer a party of prospectors ascended the large and rapid Sushitna River, which empties into Cook's Inlet, to some large falls which they discovered, about 250 miles from the mouth of the river. One of them, Mr. W. A. Dickey, of Seattle, wrote an account of the journey which bore evidences of careful and conscientious preparation. He reported two very interesting discoveries. One was that there is a break, at least 150 to 200 miles long, in the range of the Alaska Mountains, the continuation of the Rocky Mountains. This range has been shown for years on our maps in unbroken continuity extending to the sea and then far out into the ocean as the Alaska Peninsula. But Mr. Dickey reports that for 150 to 200 miles inland from Mount Sushitna on Cook's Inlet, there are no mountains where the Alaska Range has appeared on the maps. On the contrary, a broad, level country, heavily timbered with spruce and birch, stretches to the westward as far as can be seen from points on the low mountains east of the river. The other discovery was a towering mountain north of the break in the Alaska Range. It was much higher than any of the surrounding peaks and some members of the party estimated its height at 20,000 feet, which may easily be an exaggeration.

THE ORIGIN OF CRATER LAKE.—Mr. J. S. Diller, of the Geological Survey, who, last year, studied the neighborhood of Crater Lake, in the Cascade Range, South Oregon, describes (*Amer. Jour. of Sci.*, March, 1897) the geology of that region and discusses the origin of this most remarkable lake in North America. The lake is deeply set in the summit of the Cascade Range, which at this point is broad, with gentle slopes, cut by cañons, and surmounted by numerous volcanic cones. The rim of the lake, which is nearly circular, with an average diameter of six miles, rises 1,000 feet above the general level of the range. The greatest feature is the enormous pit, or caldera, containing the lake. It is 4,000 feet deep, extending from the crest of the Cascade Range half way down to the sea-level. The pit is half concealed by the waters of the lake and its volume is nearly a dozen cubic miles. The history of the lake and its rim began in the upbuilding by normal, volcanic processes of a large volcano, Mount Mazama (thus christened last summer by a society of mountain-climbers of Portland, Oregon).

This mountain was comparable, in the nature of its lavas, structure and size, with the greater peaks of the range. Crater Lake did not then exist, but its site was occupied by this active volcano, down whose higher slopes glaciers descended, scratching the rocks and depositing moraines about its base. Later eruptions occurred in the glacial period, and then, the molten material of the interior withdrawing, the summit of Mount Mazama caved in, giving rise to a caldera nearly six miles in diameter and 4,000 feet deep. Thus originated the great pit in which Crater Lake is contained, encircled by a glaciated rim, the hollow base of the engulfed Mount Mazama. Volcanic activity continued upon the bottom of the caldera and the pit was partly refilled by cinder cones and lava fields. Then volcanic activity ceasing, and precipitation being greater than evaporation in that region, the conditions were favorable for water accumulation and Crater Lake was formed in the pit.

RECENT ELEVATION OF THE SOUTHERN COAST OF BAFFIN LAND.—Mr. Thomas L. Watson, a member of the Cornell Greenland party of the sixth Peary expedition, last summer, had an opportunity to study the coast of Baffin Land, where four stops were made, viz., at Big Island, the mainland just north of Big Island, Icy Cove on Meta Incognita, and Niantilik Harbor in Cumberland Sound. He contributes to the *Journal of Geology* (Vol. v, No. 1), a paper giving the evidence in favor of the recent elevation from 270 to 300 feet above present sea-level of the lands along the south and southeast coasts of Baffin Land. This evidence is in the form of raised beaches; unlike surface conditions with differences in degree of weathering; the remains of genera and species of living shells on the beaches; beaches in many fiordic valleys on Big Island and in Cumberland Sound, now five to ten feet above high tide, but so recently formed that no vegetation has begun to grow. The uplift along South Baffin Land appears to be co-extensive with that described by Bell and Tyrrell in the Hudson Bay region.

SOUTH AMERICA.

THE PATAGONIAN ANDES.—Dr. Hans Steffen, in an interesting article on the Patagonian Andes (*Scot. Geog. Mag.*, Feb., 1897), says that a long series of hydrographic questions still awaits solution in these cordilleras. A peculiarity of this region is that the sources of most of the large rivers flowing into the Pacific Ocean extend through the ranges to the eastern offshoots of the mountains. The mouths and lower courses of the rivers have long been known,

but it is very difficult to explore the middle and upper courses from the west side, owing to the forests and the rugged character of the country. On the Argentine side, however, the upper courses of the rivers flowing to the Atlantic may be followed on horseback until they enter narrow gorges towards the west, where steep banks and rapids often present insurmountable obstacles. Thus, the problem of the Rio Palena, emptying into the Pacific, on which an official Chilian expedition worked from December, 1893, to March, 1894, is not yet fully solved, it being uncertain whether the Rio Frio, one of the sources forming the Palena, is identical with the Staleufu, or whether the latter belongs to another hydrographic basin. It is easy to understand, from Dr. Steffen's paper, why the decision of the Commission, as to the boundary between Chili and Argentina, among these cordilleras, has been awaited with such great interest. Between the water-parting, from which the rivers flow to the Atlantic and Pacific, and the central, snow-covered mass of mountains, are large valleys of great agricultural value. Argentine colonists are settling in them. Farmers and herders, for instance, are moving into the Valle del Diez i Seis de Octubre, which is easily reached from the Argentine Pampas by broad passes. The valley is over 2,000 feet above sea-level, is abundantly watered, has a mild climate, fine pasture lands, and derives additional value from the discovery of auriferous deposits near at hand. While Argentina has been settling these valleys, Chili has been upholding her claim to them, for they all lie to the west of the ranges that form the water-parting.

AFRICA.

ASCENDING MOUNT KENIA.—Mr. George Kolb reached the summit plateau of Mount Kenia late in 1895. The exact date of his ascent is not given in the account printed in *Petermanns Mitteilungen*, October, 1896. He attempted the snow mountain, which lies under the Equator in East Africa, and is supposed to be the second loftiest summit of that continent, on the east side, and was over five days reaching the plateau, which, he says, is 18,600 feet above the sea. When he began the ascent he was about 6,000 feet above the sea, and his total climb was about 12,600 feet. On the third day of the ascent, above the tropical zone, he reached Lake Ntorobbo, about two miles long and a mile and a quarter wide, over whose surface a skimming of ice forms nearly every night. Only ten of his party of natives remained with him till he reached the summit plateau, which he describes as about twelve miles long from north to south

and five miles wide. Victoria Peak (so called by Kolb, but known to the natives as Kilimara), the ice-crowned pinnacle of Kenia, is near the west edge of the plateau, and rises about 400 feet above it. It has been seen and described by climbers who attempted to reach the summit from the west side.

The somewhat undulating surface of the plateau has a scanty covering of moss and other sub-Arctic vegetation, and in some of the depressions ice was found. During the night, some of the party were frost-bitten, the blue and feeble flame of the fire emitted little warmth, a light snow fell, and at midnight there was twelve degrees of frost. The last of the food supply was consumed at the evening meal, but, nevertheless, Mr. Kolb and four of the men, next morning, advanced some distance towards Victoria Peak. They soon turned back, however, owing to the necessity of procuring food among the natives far down the mountain. Mr. Kolb thinks Victoria Peak can be climbed, though with some difficulty, as it rises from a narrow base and has a steep slope.

Kenia was discovered by the missionary Krapf on December 3, 1849, and he saw it again two years later. Joseph Thomson, who saw the mountain from the west side in 1883, was prevented by the hostility of the natives from getting nearer than twenty-five miles from its base. Count Teleki, in 1887, starting from its western base, attained a height of 15,350 feet. Capt. Dundas, in 1891, attempted the ascent from the east side, but reached a height of only 8,700 feet above the sea. Dr. Gregory, in 1893, ascended the western slope to a height of about 17,000 feet, from which point he saw descending glaciers that formerly had extended much further down the mountain. He says Victoria Peak is the core of a greatly denuded old volcano, whose crater long since disappeared. Mr. Kolb says the mountain is not difficult of ascent on the east side. Kenia is a volcanic mass, nearly 30 miles in its longer diameter at its base. The third largest of the known snow mountains of Equatorial Africa is Mount Ruwenzori, which has not yet been ascended to the top, though Mr. Scott Elliot (1894) reached a height of 12,640 feet. He thinks a practical mountaineer could manage the ascent. He believes he saw no peak in the Ruwenzori region that was higher than 16,500 feet.

EXPLORERS IN THE MAROTSE AND MASHIKOLUMBWE COUNTRIES.—Two officers in the British army, Capt. Gibbons and Capt. Bertrand, and Mr. Percy C. Reid, did some creditable geographical work in 1895-6 in that part of the Marotse and Mashikolumbwe countries,

bounded on the south and west by the Zambesi and on the east by the Kafukwe River. The three men crossed this country by different tracks, and their combined information and surveys have enabled Mr. Ravenstein to produce, in *The Geographical Journal*, a map giving a trustworthy delineation of its main features. Capt. Gibbons made extensive journeys along the Zambesi from the Victoria Falls to Lialui, the residence of the famous King Lewanika, and then far east between the northern and southern parts of the country, into the land of the Mashikolumbwe, checking his routes by numerous observations for latitude. Mr. Reid made a survey of the Machili River, determining the latitude of fourteen places; and Capt. Bertrand, from the head of that river to Lialui, connected the routes of his fellow-travellers and filled up a vacant place on the map, which certainly shows the advantage of several competent men working in co-operation. The altitudes seem to show that no part of the region visited has an elevation of less than 3,000 feet, and Mr. Ravenstein expresses the view that Lake Ngami will be found to lie at that level, though Mr. Chapman placed it at only 2,260 feet above the sea. The thermometer, at 6 A.M., one day in August, registered as low as zero, which is remarkable at so low a latitude and at an elevation of only a little over 3,000 feet.

DISTRICTS IN TROPICAL AFRICA WHERE WHITE MEN MAY LIVE AND WORK.—Tropical Africa, having been explored in broad outline, one of the interesting questions now being studied relates to the regions where the enterprises of white men may be carried on under fairly favorable conditions. Capt. B. L. Schlater, who is building a road through the British East Africa Protectorate to Victoria Nyanza, in advance of the railroad now constructing, speaks of the floor of the great Rift Valley, the longitudinal depression dividing the Mount Kenia uplands from the Mau and other plateaus to the west, as most excellent grazing ground, and he believes ranching may successfully be carried on there. The Mau and Nandi plateaus enjoy a perfect climate, and malaria is unknown above 7,000 feet. They are watered by numerous, perennial streams in deep wooded valleys. In Nandi, the cattle and sheep are the finest in East Africa. Sir John Kirk maintained (Sixth International Geog. Cong., London, 1895) that "we may dismiss as useless, for the purpose of real colonization, the whole of the maritime zones on both coasts of Africa, together with all lands in Tropical Africa below a general level of 5,000 feet."

EPHEMERAL LAKES.—Mr. Clifford H. Craufurd's journeys up the Jub River, East Africa (*Geog. Jour.*, Jan., 1897), give further evidence of the transitory character of a considerable number of African lakes. Three years ago, Deshek (lake) Ria Ghata was reported west of the lower Jub, and also Deshek Wayu, about four hours further north. When Mr. Craufurd sought them later he found merely dry depressions, that of Deshek Ria Ghata being about five miles long and 900 feet wide.

LAKE KIVU AND THE RUSIZI RIVER.—*Le Mouvement Géographique* prints (Feb. 21, 1897) a sketch map of Kivu, the considerable lake first seen by Count von Götzen (1894), north of Tanganyika, to which its waters are carried by the Rusizi. Livingstone supposed this river carried Tanganyika's waters to the Nile and was much surprised, when he visited its mouth with Stanley (Nov., 1871), to find that it was an affluent, not an effluent of the lake. The Congo State has now ascertained the limits of the Kivu Basin, which is separated from the Nile Basin by the volcanic Virunga Mountains on the north, and has planted two stations on the east shore of the lake. The details of the explorations of Kivu and Rusizi are not yet at hand, but it is known that a succession of falls renders the Rusizi unnavigable. The elevation of Kivu above Tanganyika is given at about 2,300 feet, and its absolute elevation at about 4,900 feet, which makes it the most elevated lake yet found in Africa except Tana, in Abyssinia, which is about 5,740 feet above sea-level.

FIRST COMPLETE DESCENT OF THE NIGER.—M. Hourst, last year, wound up the century's record of exploration in the Niger Basin, with the first complete descent of that river that has been made. He arrived at Akassa, in the Niger Delta, on Oct. 13, after a wholly peaceful voyage from Timbuktu, during which he collected the material for the first map, on a large scale, that has been made of the Niger. He mapped the long section from Timbuktu to Bussa on a scale of 1:50,000. The section from Timbuktu to Tibi Farca had never been explored.

NEW ROUTE TO LAKE TCHAD.—M. Gentil, in the French Congo service, started towards Lake Tchad from the Mobangi tributary of the Congo in November, 1895, with the small steamboat *Leon Blot*, which is divisible into sections for land transportation. Ascending the Kemo tributary of the Mobangi, he soon entered the Tomi affluent of the Kemo, an important water-course, over 300 feet wide

at high water, and navigable at all times by canoes as far north as Krebedge, in $5^{\circ} 46'$ N. lat., where Gentil founded a station. From that point he took the land route across the water-parting between the basins of the Congo and the Shari. His material, including the steamer, made about 1,000 loads for the carriers, a large part of which were borne on the shoulders of the natives of that region. In September last he reached the Nana River, of the Shari system, where he founded another station in $6^{\circ} 46'$ N. lat. The river is navigable, and six miles below the station is joined by the large Gribingui River. The land march between the stations was about 93 miles. When M. Gentil sent this news, on Oct. 12 last, he hoped, in November, to float his steamer again, and if all went well to reach Lake Tchad and navigate it by steamboat. If this route proves feasible a short, narrow-gauge railroad across the water-parting will establish communication by steam between Europe, the Central Sudan and Lake Tchad as soon as the Congo railroad is completed, which is a question of only a year or two more.—(*Le Mouvement Géographique*, No. 10, 1897.)

ASIA.

POPULATION OF THE CHINESE EMPIRE.—Mr. P. C. Popof published in the *Izvestiya* of the Russian Geographical Society (No. 3, 1896), figures for the population of China in 1894, which he had obtained with the help of the Chinese Foreign Office. The total population for the twenty-two provinces is given as 428,908,206. Statistics were available for only fourteen provinces, the population of the remaining eight provinces being estimated on the basis of an increase of five per cent. in the twelve years ending in 1894, the rate at which, the Chinese say, the population increased in the provinces of China proper. These figures are not reliable, for China has no census worthy of the name, but they are interesting as the Chinese official estimate of the population of the empire. The estimate of the population of China proper in *Die Bevölkerung der Erde* (No. VIII, 1891) is 350,000,000; Manchuria, 7,000,000; inner Asian possessions of China, 4,500,000; total for the empire, 361,500,000.

RECENT JOURNEYS IN TIBET.—Capt. Wellby and Lieut. Malcolm crossed northern Tibet between June 1 and Oct. 15, last year, keeping between 35° and 36° N. lat. most of the way, and nearly bisecting the largest unknown area now remaining in Tibet in the northwest part of that territory. The new country they traversed had little

fresh water, many salt lakes, and was so nearly destitute of grass that their mules and ponies rapidly died. The extremes of heat and cold in June and July were very great, the mercury marking 14° above zero (Fahr.) one night in June, and rising to 105° in the sun at mid-day. They carried on survey work with the plane-table, theodolite and sextant, recorded altitudes and temperatures and took photographs.

Capt. H. H. P. Deasy also travelled about 700 miles in this northwestern part of Tibet, between May 27 and Nov. 4, last year. Nearly due north of Aru Cho, a lake discovered by Bower, Capt. Deasy struck the barren and waterless country and, near its edge, great herds of antelope, not less than 15,000 being in view at one time. He did not venture into the waste region, but turned south through better known territory to $32^{\circ} 35'$ N. lat., $82^{\circ} 40'$ E. long. The heights and positions of 250 peaks were fixed trigonometrically, and many observations were taken for latitude, time and azimuth and to determine the compass variation. Cloudy weather prevented many observations for longitude.—(*The Geog. Jour.*, Feb., 1897.)

BORNEO CROSSED.—Dr. A. W. Nieuwenhuis, last year, crossed Borneo from west to east, ascending the Kapuas River to its headwaters and then crossing the water-parting to the Penane, by which he reached the Mahakkam River, which he followed to its mouth. His journey, therefore, involved very little land travel, as the two large rivers were utilized most of the way. When Mr. G. Muller ascended the Mahakkam in 1825 he was murdered and all his notes were lost.—(*Peterm. Mitt.*, Dec., 1896.)

DEVELOPMENT OF THE MALAY PENINSULA.—The influence of proximity to a great ocean highway upon the development of oriental or uncivilized lands is illustrated by the Malay Peninsula. For ages the Straits of Malacca have been the path of intercourse between India and the far East. The west coast of the peninsula, fronting on the Straits, has accordingly been in constant touch with more highly developed peoples and has reached a comparatively advanced stage of civilization. The states of Perak, Selangor and the Negri Sambilan, long ago included in the British Protectorate, have railroads, churches and schools. All the other territories on the west coast are open to Western enterprise and are rapidly developing. The east coast states, however, being much less accessible to the trade sea routes, have not had the same rapid development.

The whole of the state of Trengganu and a large part of Kelantan remained unexplored until 1895. The first step towards opening up the east side of the peninsula was taken in 1888, when Pahang, the most southern state, was placed under British protection. A great deal of British capital is now invested in the gold and tin mines of that state, and trading vessels are plying regularly between the ports of Pahang and the more northeastern coast states.—(Mr. Hugh Clifford, in *The Geographical Journal*, Jan., 1897.)

AUSTRALASIA.

THE CALVERT EXPEDITION.—In May last year, Mr. Albert F. Calvert fitted out, at large expense, an expedition to explore the waste of West Australia. The party, under the leadership of L. A. Wells, with his cousin C. F. Wells as second in command, started from Cue, in the Murchison River district, in June last, and struck out to the north across the desert and through an area that had never been visited, between the east and west tracks of Giles (1876) and Warburton (1873), about 350 miles apart. Nothing was heard from the explorers until last December, when a cablegram from Australia, supplemented by a letter from Mr. Wells, showed that the party had suffered terrible hardships and two members had perhaps perished. The expedition nearly died from lack of water. The party succeeded, however, in traversing the desert to Warburton's route, making for the Joanna Springs, which he placed on his map at $20^{\circ} 6' S.$ lat. and $123^{\circ} 56' E.$ long. They could not find the Springs, and Mr. Wells wrote that their position must have been wrongly indicated. They were now in sad straits and were compelled to abandon all their collections, including 3,000 specimens of natural history, instruments, firearms, and five of their seventeen camels. Four buckets of water remained, and they pushed on over the desert to the north, for the Fitzroy River, still about 150 miles away, which they reached in a woful condition. While still about 360 miles from the Fitzroy, Mr. Wells had despatched his cousin and Mr. G. L. Jones, the geologist, on a flying trip, eighty miles to the west. They were not heard of again, and there is little hope that they are living unless they have met natives near the western edge of the desert. Mr. Wells proposed to return by way of Lake Amadeus, on the eastern border of the Colony, and then make for Mount Bates to the west, apparently along Forrest's route in 1874.

A JOURNEY ACROSS NEW GUINEA.—Sir William MacGregor, the Administer and indefatigable explorer of British New Guinea, has

made a journey across the wider part of the eastern peninsula. In a despatch printed in the Bristol (Eng.) *Telegraph* of Oct. 27, 1896, he says he travelled from the mouth of the Mambare River, on the north coast, to the mouth of the Vanapa, which empties into Redscar Bay, on the south coast. The Owen Stanley range is the water-parting between these river systems. He found miners at work at the foot of Mount Scratchley, probably the whole of which is auriferous.

THE ARCTIC REGIONS.

GLACIAL OBSERVATIONS IN THE UMANAK DISTRICT, GREENLAND.—In a paper read by Mr. George H. Barton at the Washington meeting of the Geological Society of America, he gave the results of the studies made last summer, by the party from the Massachusetts Institute of Technology, in and about Umanak Fiord. Greater Karajak and Itivdliarsuk were the important glaciers studied. Greater Karajak is five miles wide and over ten miles long from the inland ice to its frontal face. The crevassing of its current extends back several miles into the inland ice. Its surface is 1,500 feet above sea-level at the inland ice, and at its frontal face, 500 feet above sea-level, a gradient of about 100 feet to the mile. The rate of motion, observed during thirteen days, was $2\frac{1}{2}$ feet a day, at a distance of 3,396 feet from the side of the glacier, and at $2\frac{2}{5}$ miles out on the glacier, the rate was about 19 feet a day; while at 1,708 feet from the side, the ice was stationary, and near the shore was moving slightly up stream. With two exceptions, all the glaciers show evidence of diminution in length and depth, and everywhere are proofs of the former greater extension of the inland ice, which once covered all the higher peaks, filled the fiords and extended into Baffin Bay.—(*Jour. of Geol.*, Vol. v, No. 1.)

MR. R. E. PEARY'S EXPEDITION TO GREENLAND IN 1897.—A letter from Mr. Peary, read at the Washington meeting of the Geological Society of America in December, said that a ship would be sent to North Greenland, in the summer of 1897, to obtain the large meteorite on the coast of Melville Bay; and that the vessel would transport parties that might desire to study glacial and other natural phenomena. The Society endorsed his suggestion and recommended that colleges, universities and other scientific organizations consider the advisability of sending independent parties to be placed at various localities along the West Greenland coast to carry on work for five or six weeks. Mr. George H. Barton, of the

Massachusetts Institute of Technology, who accompanied the sixth Peary expedition to Umanak, has an article in *Science* (Feb. 19, 1897), describing the many advantages of this field of study, the excellent work that may be done at small cost, and the facilities for summer camping and transportation along the coast.

THE OCEANS.

SUB-MARINE INVESTIGATIONS NEAR ICELAND.—The Danish warship *Ingolf*, which was engaged in hydrographic researches in the Danish waters of Greenland and Iceland for nearly four months, last summer, discovered a sub-marine, volcanic range extending for at least fifty miles into the Atlantic from Cape Reykjanes, the southwest promontory of Iceland. The summit of the range is only 200 to 300 feet below the surface. The *Ingolf* was able to approach only within 24 miles of Angmagsalik, one of the inhabited fiords of East Greenland, on account of the ice-pack, but the vessel reached Jan Mayen in the North.—(*Peterm. Mitt.*, Nov., 1896.)

FOUNDATIONS OF CORAL ATOLLS.—Admiral Wharton has contributed to *Nature* (Feb. 25, 1897), a paper on some results of the recent surveys by H. M. S. *Penguin* among the islands of the Ellice group, one of the typical Pacific groups of atolls. He says the soundings carried on by the *Penguin* show incontestably that each atoll rests on a separate mound rising from a more or less even bottom of great depth below the surface, proving "that there has never been anything of the nature of a range of continental land which has gradually sunk beneath the waves. Each atoll, if it has sunk, has subsided independently with its own isolated volcanic peak." The *Penguin* also explored four neighboring banks, all of submerged atoll form, about 250 miles southwest of Ellice Islands. They are uniform in the depth of water (24 to 26 fathoms), over their areas, inside the low rim of growing coral encircling the edges. The largest bank is 22 miles by 10. Admiral Wharton does not believe the banks are due either to the uniform subsidence of mounds of the same height, or to the building up of mounds to the same level below the surface. He suggests that they are the result of the cutting down of volcanic islands by the action of the sea, and that this action has a considerable share in affording coral foundations. He mentions recently formed volcanic islands like Graham, near Sicily, and Falcon, near the Tonga group, to show that many of them are formed of loose matter, tufa, ash, etc., easily acted on by the waves, so that many such islands have disappeared or been reduced to a small part of their original area. He also

gives illustrations to show that volcanic ash may be moved, at depths of thirty fathoms or more, by waves, in an otherwise deep sea over which strong winds continually blow. The effect is to cut down an island to a considerable depth below the surface, the final result being a perfectly flat bank. He thus argues that without Darwin's theory of subsidence, deep and large atolls may be formed.

SURFACE OCEAN TEMPERATURES AND CLIMATE.—Mr. H. N. Dickson says (*Geog. Jour.*, Dec., 1896) that observations were taken, last year, in various parts of the North Atlantic, on currents and temperatures. About 1,000 samples of water were collected by the officers of a large number of vessels, and the work is to be continued this year. The purpose of this inquiry is to obtain a fairly complete knowledge of the surface currents in the North Atlantic and the Norwegian Sea and their bearing upon the distribution of the coast waters, and upon the interesting theory which Prof. Otto Pettersson has published in the *Meteorologische Zeitschrift* and which seems to be justified by all the facts now known. The data collected during a long period by Danish, Norwegian, Swedish and British observers, seem to show almost conclusively that when an unusual quantity of warm oceanic water has entered the Baltic in the autumn, cyclones with mild weather have marked the following winter; but when the land streams pour an unusually large quantity of cold fresh water into the sea, spreading it over the surface, cold, anti-cyclonic conditions are the result. The influx of a vast quantity of warm water in the Baltic, for instance, accompanied and was followed by the mild winter of 1894; but the southern part of that sea was entirely filled with fresh, cold water, mostly from the land, during the severely cold winter of 1895.

GENERAL.

President Jordan, in the Commission's report on the condition of the fur seal, estimates the number of seals killed last year at 440,000. About 27,000 pups died of starvation, and pelagic sealing caused the death of about 30,000. Since pelagic sealing began at least 400,000 females have been killed, which means the starving of 300,000 pups and the destruction of 400,000 pups unborn. In order to keep the Pribilof herd intact, he recommends that the open season for killing females be abolished.

The Twelfth German Geographical Congress, which will meet at Jena, April 21-23, will have for the chief subjects of discussion: 1, Report of the Special Committee, appointed in 1896, on Antarctic

exploration; 2, Polar exploration, North and South; 3, Geophysical questions (earth magnetism, gravity measurements, earthquakes, etc.); 4, Biological Geography; 5, Geography of Thuringia; 6, Geography teaching.

The *Scottish Geographical Magazine* quotes from *Ciel et Terre* the following heights of clouds obtained by Dr. E. Kayser from about 1,500 measurements by photogrammeter: stratus, 5,590 feet; strato-cumulus, 7,205; cumulus, 9,370; alto-cumulus, 13,445; cirro-cumulus, 21,437; cirrus, 32,949.

The latest census gives Greece a population of 2,418,000, an increase of 201,000 since 1889. Athens has 128,000 inhabitants.

On Feb. 3 Dr. F. Nansen addressed the Royal Geographical Society in Albert Hall, London, on which occasion a special gold medal was presented to him and special silver medals to Captain Sverdrup, Lieuts. Scott-Hansen and Johannsen and Dr. Blessing. Bronze medals were given to the other members of the *Fram* expedition.

The name of the Geographical Club of Philadelphia has been changed to the Geographical Society of Philadelphia. The membership has increased from 132 to 310 since 1892. In February, last year, the Society had the misfortune to lose its library and exchange files by fire. New quarters have been secured at 1520 Chestnut street, where the nucleus of the new library is collecting. The Society has seven regular meetings during the winter, besides occasional extra meetings, and is stimulating considerable local interest in Geography. Volume I of the Society's *Bulletin* was completed some time ago, and the first two numbers of Vol. II have been issued.

On July 6 and Sept. 8, last year, earthquakes in Japan were recorded by Dr. John Milne's seismographs, in the Isle of Wight, about sixteen minutes after their occurrence. Recent newspaper reports of disasters of this kind in Japan appeared, from the absence of records by the Isle of White seismographs, to have been exaggerated, and this proved to be the case. Dr. Milne has written to the London *Times* that a leading object now before seismologists "is to determine the velocity with which motion is propagated from an origin through the earth to its antipodes, and to other points upon its surface." In other words, it is desired to make a seismic survey of the world. He says that the sum of \$5,000 would equip with the necessary instruments twenty Observatories that are willing to co-operate, and he trusts that this small sum may be raised to carry out so useful a work.